The Brace Guide™

by Mediroyal

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mediroyal

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Introduction

The Brace Guide by Mediroyal™ was written to explain how injuries happen, how they are treated and how braces work. When you have been injuried it is important to find out the underlying cause. This way you can prevent the same injury from occurring again. It is therefore important to seek medical attention if the injury does not improve within a few days.

Braces have many positive effects after an injury. They are simple tools that provide support and pain relief without side effects and can be used long after the injury has healed for protection and to retain stability. Braces do not contribute to muscles and joints becoming weaker. On the contrary, you can continue to be active because of the positive effect of a brace. This is the best way to prevent muscles and joints from becoming weaker! Keeping your body active is important to prevent many of today's orthopedic injuries.

We hope you will enjoy The Brace Guide by Mediroyal™ and wish you enjoyable reading!

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What happens when you injure yourself?

Twisting your ankle while taking a walk can be easily done. Unfortunately it's not always immediately that you realize the consequences of what's happened. It's a couple of hours later when the ankle is swollen and you have pain that you understand that something serious has happened. Then it's too late to reduce the effects of the injury. The bleeding has caused swelling which produces the pain and reduces the range of motion in the joint. Correct acute care can reduce the time for recovery significantly.

Acute and Overload Injuries

Injuries can be divided into acute and overload injuries, depending on the cause.

Acute Injuries

Acute injuries happen suddenly and have a clear cause. External factors like other players, equipment and different surfaces can contribute. The acute injury often leads to bleeding in a muscle or tendon. The bleeding causes the swelling and bruising that can be seen after a few hours. The swelling causes pain and reduces the normal range of motion in the joint. A normal ankle sprain takes between 6-8 weeks to heal. Correct acute care is therefore very important.

A compression bandage should be applied immediately after a sprain to stop the bleeding. It is similar to having an open wound, only no blood is visible. Every minute without a compression bandage increases the swelling through the bleeding. The swelling will cause a lot of problems later. The compression bandage should be applied tightly without causing too much discomfort. Always check for circulation below the bandage after application. It should be kept in place a minimum of 30 minutes, preferably longer. After that it can be loosened but it should be worn for at least the first two days to prevent further swelling.

Elevation is not that important during the first two days. Most of the fluid that contributes to the swelling is still outside the blood vessels and therefore not affected by elevation. Elevation is very effective later in the injury phase since it reduces swelling. The cooling effect is controversial. An instant ice-pack does not have enough of a cooling effect to affect the bleeding significantly. However cooling works excellent when combined with compression. Pain relief and reduction of the swelling are then achieved. If possible it's a good idea to offload the injured area, preferably with a crutch. A crutch reduces the load on the ankle or knee significantly and enables a normal gait which could help to further reduce the swelling.

If you can't put weight on the joint at all, seek acute medical attention. There is a risk that you have a fracture that will require professional medical care.

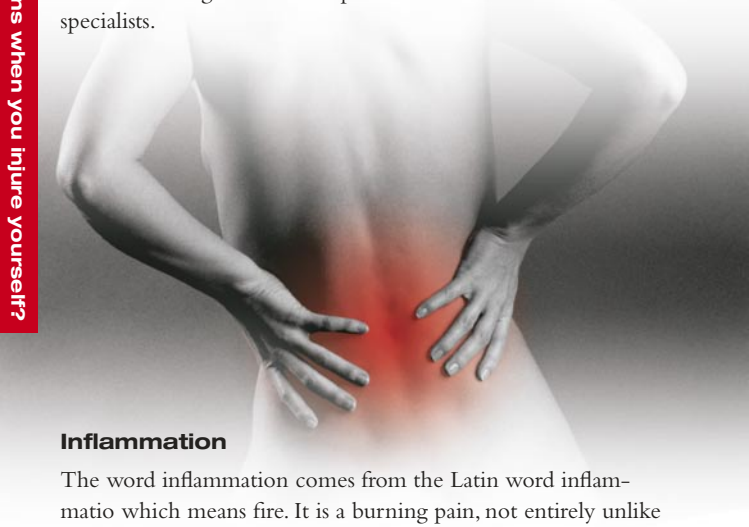
Overload Injuries

Overload injuries occur gradually without a single incident. High intensity, prolonged loading and unbalanced training can lead to overloading of parts of the body. Recovery and rest are as essential to the body as activity. The risk of getting an injury will increase dramatically without proper time to recover. Several different factors often interact when you have an overload injury. The most common factors are too rapidly increasing training, muscular imbalances, deformities, different surfaces and shoes.

Pain

Pain is the natural way for the body to signal that something is wrong. It is very personal and experienced differently from person to person. Some can tolerate a lot of pain while others are very affected by the slightest pain. We distinguish between

acute pain and chronic pain. The acute pain, which comes after an ankle injury or fracture, is usually treatable with painkillers. The prolonged pain is more complicated to treat and requires an accurate diagnosis and cooperation between different medical specialists.



Inflammation

The word inflammation comes from the Latin word inflammatio which means fire. It is a burning pain, not entirely unlike the experience you may have from an inflammation. Inflammation can be categorized by acute and chronic inflammation. The acute inflammation can be caused by pressure, repeated irritation, overloading, deformities, external trauma, or infection. Before starting treatment, it is important to find out what caused the inflammation in order to prevent recurrence. The most common symptoms of inflammation are:

- Local redness and hyperthermia over the affected area
- Local swelling
- Pain when touching or moving the injuried limb
- Reduced mobility and function of the limb.

Inflammation heals by itself if you reduce the stress and activity. There are however inflammations that do not heal by themselves. These can turn into long-term pain conditions. All inflammations will damage the body tissues.

When the inflammation is healed the body will have repaired the tissue completely.

More severe inflammations can leave scar tissue which will replace the normal tissue.

Sore Muscles

When muscles are loaded beyond their normal capacity, it's common that they feel sore afterwards. This is completely normal. The muscle might become both stiff and sore, which can cause pain when it's loaded. It's important to listen to the body signals – if you train with reduced intensity and loading, the pain will go away. Increased circulation will make the recovery faster. Muscle soreness should decrease after a few days, after which you should be completely pain free. Using a brace with a heating effect in combination with stretching can be a very positive way to reduce your pain, stiffness and discomfort.

Sprains

A sprain means that a ligament over a joint is over-stretched or even tears partially. The pain can be weak in the early stage, but a couple of hours later the pain can increase as long with the swelling. The swelling can cause a downward spiral with pain and reduced activity, which in turn causes even more swelling. With all sprains there is always a risk of fracture, and therefore they should always be x-rayed. The most common are knee, ankle and finger sprains; but also the shoulder, elbow and knee-cap can be affected. Severe injuiry to a join always requires professional medical attention and rehabilitation.

The function of the ligament is not only to stabilize the joint, but also works as a sensor that can feel what position the joint is in. When the ligament is injured this ability will be reduced. This can also make it easy to reinjure yourself. A brace can activate the receptors in the skin which take over parts of the lost function. Physical therapy with balance and coordination exercises are important in the rehabilitation process.

It is difficult to estimate the time for recovery. Uncomplicated injuries can take 6-8 weeks to heal completely. It's common that you feel much better after 2 weeks, however it takes a much longer time to heal completely. A good indication is when you have the same strength and can tolerate the same loading and activity with your injured body part as with your uninjured one. More complicated sprains can take as long as a complicated fracture to heal.

Muscle Tear

A muscle is built pretty much like a heavy rope. Several smaller fibers make up a larger muscle. The muscle has two or more attachments and can extend and flex. The function of the muscle is to steer the joint in the right direction and to stabilize it. This is possible through a complex interaction between the brain, nerves, receptors, muscles and ligaments.

A muscle tear may be partial or complete and caused either by a direct blow or by overexertion. It can happen if the muscle is forced out of it's normal range of motion or during rapid movements where the muscle is not prepared or properly warmed up. The pain might come suddenly, and any contraction of the muscle will cause pain. You may also feel a defect of the muscle, a bump or an indentation, at the most painful site. After a while the muscle will feel stiff and every contraction will be painful. The tear can be superficial or deep but all will cause bleeding. If the fibers are torn inside a muscle this bleeding will cause swelling inside the muscle. The swelling has no where to go, and as a result will cause weakness, stiffness and pain.

Apply a compression bandage immediately after the injury to decrease the bleeding. If you have a severe muscle tear preventing you from walking or limping without extensive pain, you should seek professional medical attention immediately. Massage is absolutely forbidden during the first days as it will cause additional trauma and interfere with the healing process. A light compression bandage or brace can be very comfortable and can reduce swelling. Returning to activity should not be done until

you are completely pain free and have full muscular strength and flexibility. The goal should always be to have similar strength and function as the uninjured body part.

Degenerative Joint Disease

Osteoarthritis is the most common human joint disease. The joint surfaces are subject to degenerative changes which causes damages to the cartilage. The most common reasons are genetic factors, trauma or deformities. Trauma or fractures in the joint can cause damage that later in life develops into osteoarthritis.

The pain can be very intense, especially after a period without activity or in the morning. Problems with extending the joint are common and the range of motion will decrease as the disease progresses.

Several new medicines have been launched over the last several years which have been shown to be very effective. Moderate exercise is very important as treatment. It both prevents as well as eases the problems. Weight loss has also been shown to be a very effective way to reduce pain, even for people with normal weight.

A brace will provide support, protection, heat and pain relief.

Muscle Cramp

After a hard exercise session it's easy to get a muscle cramp. Muscle cramps are normal and uncomplicated if they occur only occasionally. What actually happens is not clear. One theory is that the body is low on minerals and salts, which can cause the cramps.

You should always pay attention to recurring problems, and particularly nocturnal leg cramps. They may be signs of circulatory problems and should be investigated by a medical professional. Infections can also be an underlying cause.


Injury
Loading
Correct acute care treatment
Increased risk of injury
Correct diagnosis
Return to activity too early
Individual rehabilitation
Preventive measures like training, brace or stretching
Reduced risk of injury
mediroyal
Return to full activity

When should you seek help?

For more severe injuries with bruises and swelling, or when the limb can't be used or to stand on, you should always seek professional medical attention. There is a risk that you might have a fracture and it's important to start the proper treatment immediately. Also pay attention to pain or injuries that have no real cause or relevance such as severe knee pain without any loading of the knee. It's always better to seek medical attention if you are uncertain.

MR8851

Medical effects of braces

Braces are used in both rehabilitation and sports medicines, and provide many positive advantages. Some of the most important are:

Heat

Porous textile materials like neoprene insolate the body heat over the area where the brace has been applied. This effect is very positive since it increases the blood flow locally. It also leads to an increased response and reaction from the muscles as well as an anti-inflammatory and analgesic effects. The analgesic effect is important since it allows activity which increases the movement of the joint. A brace can also retain heat in the muscle after activity.

Support and Compression

After an injury it's common that the joint feels unstable and normal loading might be difficult as well. To use a brace or an elastic bandage provides compression over the body part which can help reducing swelling. This also provides a receptive support which alerts the body to pay more attention to the injuried body part. The muscular response increases and improves with a support on. The brace also allows activities that were too painful before.

Protection

A brace can also provide physical protection. Inflamed muscles and tendons are sensitive to pressure and impacts. The neoprene material absorbs pressure and protects the skin area. This can allow you to do activities with a support on that you didn't dare do without. In contact sports it's common that hinged and reinforced braces are used for protection.

Joint Position Sense -Proprioception

The neuro-muscular interaction is very complex and we don't really understand it's full function. Tendons and ligaments are full of small receptors that can feel which position the joints are in. The receptors send signals to the spinal cord and brain, which then activate the muscles that can change the position, and stabilize, extend or flex the joint. This ability is called proprioception, and is essential for the body to function properly. An injury to a tendon or ligament might reduce their performance and functionality. This means that it might take a little extra time to send the signals, causing the muscle to receive the signal too late to stabilize the joint. That's when there is a high risk of re-injury. Further injuries would lead to even slower response and worse proproceptive ability.

A brace can stimulate the receptors in the skin. They can take over parts of the function from the receptors in the ligaments and tendons. This stimulation leads to a better joint position sense. This can also prevent a negative downward spiral with repeated injuries. Studies* have shown that knees with degenerative diseases and inflammations have benefited from using a brace. The joint position sense increased with over 40% for the groups that used braces on compared with the ones who did not. It's important to note that knees without any injuries could not increase their joint position sense more than they naturally had.

* JOINT PROPRIOCEPTION IN NORMAL, OSTEOARTHRITIC AND REPLACED KNEES. D. S. BARRETT, A. G. COBB, G. BENTLEY, THE JOURNAL OF BONE AND JOINT SURGERY VOL. 73-B, No. 1, JANUARY 1991 53

Prevention

The effectiveness of preventing injuries by using bracing has been difficult to prove. Several studies have been made on larger and more advanced knee braces, however the results have shown that the incidence of injuries are pretty much the same with or without a brace. This is only applicable for a knee that has never been injured. On the contrary, injured knees can benefit from the positive effects of bracing to prevent an injury from reoccuring. The increased joint position sense provides a higher awareness and stimulation of the body part. This, in combination with the heating effect that makes tendons and muscles more elastic, can help prevent further injuries. It's very important to break the cycle of a downward spiral of constant re-injuries. A brace can also help to assure correct positioning. Carpal tunnel problems are normally caused by sleeping with a bent wrist. This increases the pressure against the nerves in the carpal tunnel. A wrist brace can help to prevent the false position that causes the pain and problem.

The Expectation Effect – Placebo

In all medical treatments, from medicine to different forms of therapy, we have a so-called expectation effect or placebo effect. The expectation makes you feel much better without any medically proven treatment. This is not at all negative. On the contrary, the placebo effect is very important, and if the patient has great confidence in a treatment it may help recovery.

A brace can help you to feel better and thus enable you to perform activities that you could not do without it. Previously many patients with acute back pain were told to stay in bed until pain-free. Today we recommend activity and a back brace as support in order to be able to perform normal functions. This makes it possible to stay active, prevent muscles from getting weaker and reduce pain without taking drugs.

Medical effects of braces

Carpal Tunnel Syndrome – *CTS*

Wrist tendons and nerves run together in a narrow channel called the carpal tunnel. A strain or inflammation can cause swelling, resulting in a pinching of the nerve due to lack of space in the tunnel. This leads to tingling, tenderness, pain and numbness in the fingers and palm.

Possible Causes:

- Overloading of the wrist while being sharply bent or overextended.
- The wrist held in a bent position for long periods such as overnight.
- Inflammation in the wrist.
- Repeated overloading of the wrist without sufficient time for recovery and rest.

Symptoms:

- Pain and tenderness in the lower part of your palm.
- Numbness, especially in the thumb, forefinger and middle finger.
- Weakness in the wrist and an inability to control the finger movements.
- Weakness in the hand strength.

Suggested Actions:

- Use of a wrist brace to support the hand during activity.
- Avoid painful movements.
- Use of a wrist brace at night to prevent bending of the wrist.
- If you have severe problems that do not improve, consult a physician.

Suitable Products:

8810 One-Size Wrist Beige, 8811 One-Size Wrist Black

MR8810

Overloaded Wrist

The wrist has to tolerate heavy loading during a normal day. Everything from small delicate movements to heavy lifting, sometimes as heavy as your entire body weight. Unilateral movements are particularly stressful because the muscle is constantly loaded without time to relax. This can lead to overloading with inflammation as a result. The inflammation makes most of the movements painful.

Possible Causes:

- Overloading of the wrist associated with such activities as gardening, sports or office work.
- Loading of the wrist in an extreme bent or overextended position.
- Unilateral movements without sufficient time for recovery and rest.

Symptoms:

- Pain, tenderness and swelling of the wrist when stretched or bent.
- Weakness in the wrist in certain movements.
- During severe inflammation crepitations can be felt in the tendons.

Suggested Actions:

- Active rest and avoiding painful movements.
- Use of a wrist brace to support the hand during activity.
- Find alternative and varied workout movements.

Suitable Products:

8810 One-Size Wrist Beige, 8811 One-Size Wrist Black, 8815 One-Size Universal Wrist

MR8810

MR8815

Tennis Elbow – *Epicondylitis*

Tennis elbow is an inflammation of the muscles and muscle insertions on the outside of the elbow. The inflammation is caused by congestion and unilateral movements of the wrist and elbow. The upward bending of the wrist associated with rotation can trigger symptoms. Problems with the outside of the elbow are most common. This is referred to as Tennis Elbow (lateral epicondylitis). Symptoms can also come from the inside of the elbow (medial epikondylitis) and would then be called Golf Elbow.

Possible Causes:

- Intensive and unilateral movements leading to an overloading of the muscle insertions of the elbow.
- Rotation of the arm in combination with the upward bending of the wrist, loading the muscle negatively.
- A too large grip on a tool/racket leading to a static overloading of forearm muscles.
- High activity without sufficient time for recovery and rest.

Symptoms:

- Pain localized to the outside of your arm and elbow, sometimes radiating down towards the wrist.
- Distinctive pain when the wrist is bent up and held statically while someone tries to pull the hand down.
- Weakness and tenderness in the hand and underarm.
- The pain is localized to the muscle insertions and muscle belly on the outside of the elbow. In order to more easily locate the area, bend your wrist upward and follow the muscle belly, which is located on the upper side just below the elbow joint.

Suggested Actions:

- Specific eccentric training and stretching with the help of an occupational therapist or physiotherapist.
- A wrist brace to stabilize the wrist and reduce the risk of loading the wrist incorrectly. A tennis elbow brace can relieve and reduce the pain.
- Avoid rotation movement and loading with the wrist bent upwards.
- Treat the painful area with ice to reduce pain and inflammation.

Suitable Products:

MR8810 One-Size Wrist Beige, MR8811 One-Size Wrist Black, MR8821 One-Size Tennis Elbow Brace.

MR8821

Symptoms

Elbow

Overloaded Elbow

The elbow is constantly involved and loaded in all lifting activities of the arm. Heavy lifting with prolonged static stress may cause an overloading of the tendon insertions and muscles around the elbow. The symptoms are pain and weakness in the elbow during activities.

Possible Causes:

- Overloading of the elbow in activities like working in the garden.
- Improper wrist position when loading; for example when training with free weights and having a poor wrist stability.

Symptoms:

- Pain, weakness and soreness in the elbow region.
- Increased pain when loading, bending and stretching the elbow.

Suggested Actions:

- Active rest and avoiding painful movements.
- An elbow brace to provide warmth and support.
- Find alternative and varied workout movements.

Suitable Products:

MR8820 One-Size Elbow Brace, MR8815 One-Size Universal Wrist

MR8820

MR8815

Symptoms

Elbow

Elbow Pain – *Bursitis*

The elbow tip is a very sensitive area because of a lack of soft tissue to protect it. The body is equipped with an extra shock-absorbing cushion, called a bursa, which protects the tip. Overloading, irritation or trauma to the tip can cause the bursa to be inflamed which can cause pain and reduced range of motion.

Possible Causes:

- Intensive and prolonged stress or trauma of the elbow tip can cause irritation and inflammation.
- Trauma against the elbow tip.

Symptoms:

- Pain over the elbow tip in both rest and activity.
- Mild swelling when pressing over the area. Sometimes the swelling can be severe and it feels like a jelly lump in the middle of the swelling.
- Stiffness and difficulty in stretching or bending your arm.

Suggested Actions:

- Treat the area with ice to reduce pain and inflammation.
- Rest and avoid painful movements or loads.
- A brace provides relief, shock absorption and heat.

Suitable Products:

MR8820 One-Size Elbow Brace

MR8820

Acute Back Pain – *Acute Lumbago*

Pain in the lower part of the back which may come gradually or suddenly. Bending of the back becomes is then almost impossible without extensive pain and lumbar stiffness. The cause of lumbago is not entirely clear, sometimes underlying causes like disc problems are indicated but often no cause is found.

Possible Causes:

- Overloading of the lumbar spine in combination with rotation, like heavy lifting with a curved back, for example, when gardening or shoveling snow.
- Tight muscles will affect the spine negatively.
- Prolonged periods of sitting putting a lot of pressure on the lumbar area.
- Lack of or poor warm-up before activity.

Symptoms:

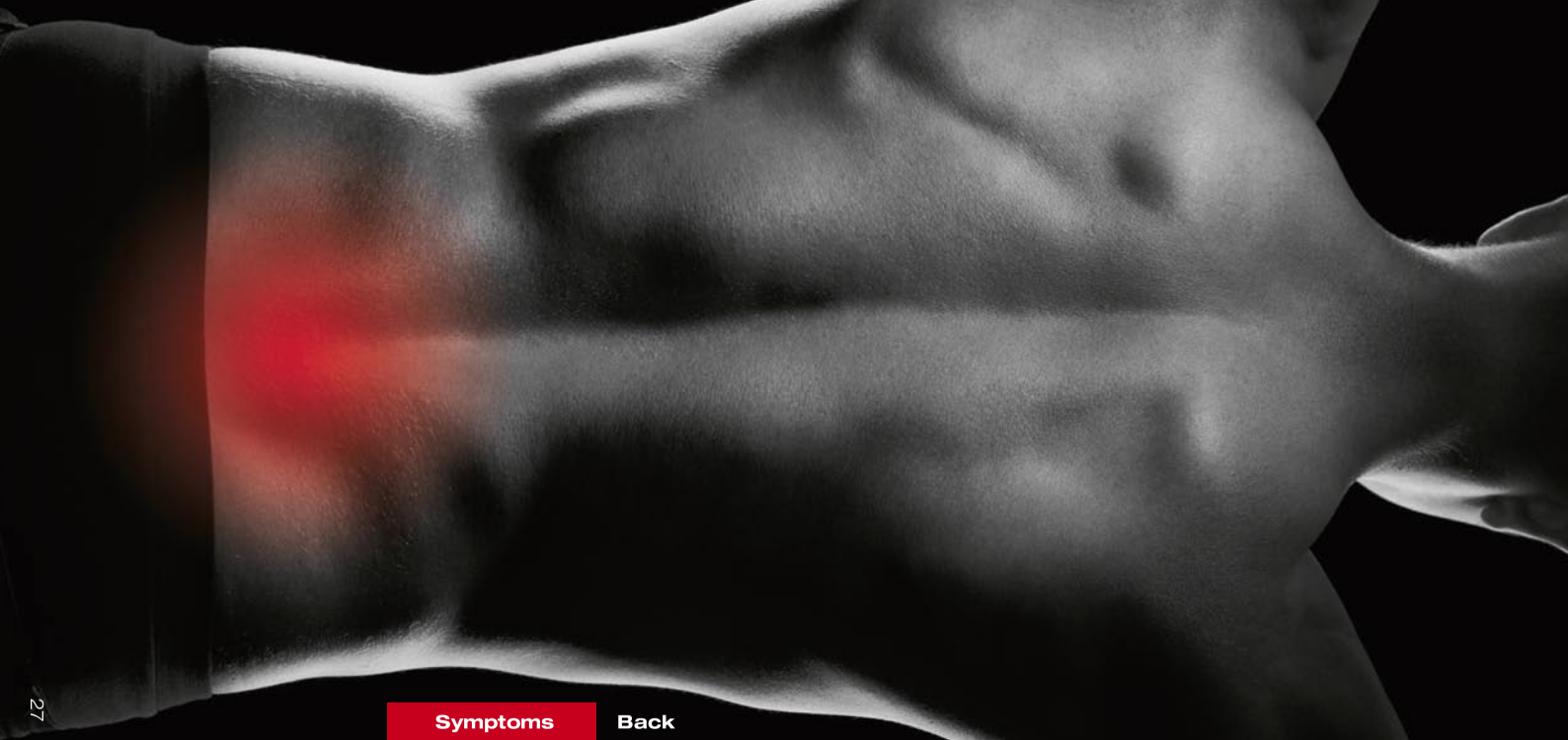
- The lower back feels locked and rigid.
- Tingling to severe pain either constantly or coming with movements.
- Impossible to do bending and turning of the lumbar spine.

Suggested Actions:

- Active rest. The problem will go away faster if remain carefully active.
- Cold treatment with ice in the acute phase.
- Avoid painful movements.
- Heat treatment can relieve symptoms.
- A back brace will provide support, relief and heat.
- Physiotherapy to strengthen muscles, relieve pain and if necessary to do stretching.

Suitable Product:

MR8830 One-Size Back Brace with warming NeoTex in the back.



Sciatica – *Lumbago Sciatica*

Pain in the lower back radiating down in the buttocks and leg. Sometimes it radiates all the way down to the foot. Sciatica is not a diagnosis but a symptom, and comes from the name of the nerve that usually is affected; the sciatic nerve. It's the body's largest and longest nerve. Sciatic pain is common in disc herniation when the damaged disc presses against the nerve. Symptoms result like loss of power, reflex and sensation.

Possible Causes:

- Underlying disc problems.
- Overloading of the lumbar spine.
- Pregnancy.

Symptoms:

- Pain in the lumbar region radiating down in the buttock and leg.
- The pain may worsen with stress, exertion or coughing.
- Weakness, loss of sensation and numbness in the legs.

Appropriate Action:

- Resting in a pain-relieving position like the Fowler's position (also called psoas position), or on the side with a pillow between your knees.
- Avoid painful movements and postures.
- A back brace will provide support, relief and heat.
- Physical therapy to relieve pain and strengthen muscles.
- Problems that do not improve should be examined by an orthopedic doctor.

Suitable product:

MR8830 One-Size Back Brace with warming NeoTex in the back.

MR8830

Psoasställning

Pain in the Knee Joint – *Osteoarthritis*

The surfaces of the knee joint are covered with smooth and hard cartilage. The cartilage provide shock absorption and allows the joint to glide easier. The composition of the cartilage may change over time which can cause damage to the joint surfaces. This leads to problems with pain, swelling and instability. Hereditary factors, obesity, fractures or other damages to the knee joint can affect the changes negatively.

Possible Causes:

- Hereditary factors.
- Obesity, which loads the knee joint extensively.
- Previous injury to the meniscus or the ligaments of the knee joint.
- Previous fractures or trauma in the knee joint.

Symptoms:

- Pain when overloading the knee joint.
- Pain after periods of inactivity. This can affect sleep negatively.
- Swelling over the knee joint.
- The knee joint feels stiff especially in the morning.

Suggested Actions:

- Active rest. An osteoarthritic knee will feel better when you keep it active.
- Unload the knee joint when you have pain.
- A physical therapist can design an exercise program where the knee joint is strengthened without much loading.
- A knee brace provides support, relief and heat.
- Physical therapy for painfree exercise and to strengthen the muscles around the knee joint.

Suitable Products:

Knee Brace Elastic MR8850, MR8851 One-Size Knee Brace Universal

MR8850

MR8851

Meniscus Injury

The meniscuses are two crescent-shaped cartilage elements on the joint surface between the lower leg and femur. They have many important functions in the knee joint. They work as shock absorbing elements but are also crucial to knee stability. In the past it was common that a damaged meniscus was removed completely. However it was shown that this leads to early osteo-arthritis and other knee problems later in life. Today we try to save as much of the damaged meniscus as possible.

Possible Causes:

- Turning or twisting of the knee with the foot fixed on the ground. It's a common injury in soccer, handball and floorball.
- Inward rotation of the knee often damages the medial meniscus while outward rotation damages the lateral meniscus.
- Hyper-extension of the knee can also cause damage to the meniscus.

Symptoms:

- Pain during movement and loading of the knee joint, especially in deep flexion or in maximum extension.
- The knee joint locks in certain situations.
- Pain over the joint area.
- Pain during inward or outward rotation of the knee joint.

Suggested Actions:

- Unload the knee with crutches in the acute phase. This will help to maintain a normal gait pattern.
- Physical therapy to strengthen the muscles around the knee and to maintain good function.
- A knee brace provides support, heat and unloading.
- Consult an orthopedic doctor to rule out more serious injuries.

Suitable Product:

MR8851 One-Size Knee Brace Universal

MR8851

Collateral Ligament Injuries

– MCL-LCL Ruptures

The knee joint has ligaments located on both sides. The most common ligament injury is the medial collateral ligament injury. The medial collateral ligament (MCL) grows together with the medial meniscus. Injuries to the MCL often involve damages to the medial meniscus. Injuries to the lateral collateral ligament (LCL) often occur during outward rotation of the knee in combination with rapid extension.

Possible Causes:

- Inward or outward rotation of the knee when the foot is fixed on the ground for example during soccer or handball.
- A collision causing trauma against the side of the knee.
- Hyper-extension of the knee joint in combination with rotation.

Symptoms:

- Pain directly after the trauma. Afterwards, tenderness and swelling over the ligaments.
- Pain that will increase when loading the joint. Severe injuries makes loading of the knee joint impossible.
- General feeling of instability.

Suggested Actions:

- Apply a compression bandage over the injuried area. Unload the knee joint in the acute phase with crutches.
- Consult an orthopedic doctor to rule out more serious injuries and fractures.
- Physical therapy to strengthen the muscles around the knee joint along with an individual training program.
- A knee brace provides support and unloading.

Suitable Product:

MR8851 One-Size Knee Brace Universal

MR8851

Runners Knee – *Iliotibialband Syndrome*

Runners Knee is a painful condition on the outside of the knee joint that mostly affects runners. The problem results from running over terrain or uphill with overpronated feet. If the Iliotibial Band and the muscles on the outside are too tight, the area above the insertion on the lower leg will be pulled over the condyle of the thigh bone. This will cause an irritation that can develop into an inflammation. The pain is often distinct, and once it starts will make running almost impossible. If you rest, pain will be reduced but will come back when you start running again.

Possible Causes:

- Overloading in combination with poor stretching of the thigh, hip and buttock muscles.
- Strong pronation (inward rotation of the foot) and worn-out running shoes.

Symptoms:

- The pain is distinct and localized on the outside of the knee, 1-2 inches above the knee joint, often just above the condyle of the thigh bone.
- When loading the knee, the pain will increase until it's impossible to continue to run.
- Running in hills, over terrain or stair walking can provoke the symptoms.

Suggested actions:

- Rest until pain-free. Try to find other activities for a few weeks that don´t give you pain, such as cycling or swimming.
- Stretching of the muscles in the hip, thigh and buttocks can reduce the pain.
- Physical therapy to strengthen the leg and pelvic muscles.
- Gait analysis to verify that you have appropriate shoes. If any deformities are found, correct with temporary wedges or biomechanically stabilized insoles.
- A knee brace provides heat and pain relief.

Suitable Product:

MR8851 One-Size Knee Brace Universal

MR8851

Jumpers Knee

Jumpers Knee is an overload injury of the patella tendon. This is common among athletes who do powerful jumping and running that puts extra stress on their knees and tendons. The stress can result in small ruptures that will lead to pain. Since the tendon has a critical placement, it is loaded with every step taken. This might make the healing process more difficult.

Possible Causes:

- Overloading of the knee joint and kneecap tendon.
- Weak thigh muscles that puts more loading on the tendon.
- Foot deformities (pronation), which leads to an overloading of the kneecap tendon.

Symptoms:

- Pain is localized to the tip of the kneecap, especially when loading.
- Pain, swelling and stiffness after activity.

Suggested Actions:

- Find alternative activities for a few weeks that do not cause pain, such as cycling or swimming.
- Physical therapy with specific eccentric training and stretching.
- Gait analysis to verify that you have appropriate shoes. If any deformities are found, correct with temporary wedges or biomechanically stabilized insoles.
- A knee brace can provide pain reduction during activity.

Suitable Product:

MR8852 One-Size Knee Strap

MR8852

Osgood-Schlatters Disease

– Os Schlatter

Overloading and inflammation of the kneecap tendon insertion on the lower leg. This problem affects mainly active boys and girls 10–16 years of age. It can cause a nodule to form over the insertion. The affected area is very sensitive to pressure and kneeling is almost impossible. The pain will increase with the intensity of the loading.

Possible Causes:

- Sports where the thigh muscle is very active. This, in combination with extensive growth within a short period of time, will put extra loading on the tendon.
- Extensive training without enough time for recovery will lead to increased pain.
- Deformities of the foot (pronation) can lead to an unfavorable loading of the area.

Symptoms:

- Pain over the insertion both during loading or when pressed. The pain becomes more intense the longer the knee is loaded.
- Pain, swelling and stiffness over the area after activity.

Suggested Actions:

- Find alternative activities that do not cause problems.
- A knee brace can provide pain relief.
- Local ice treatment over the insertion can reduce both the pain and the inflammation.
- Gait analysis to verify that you have appropriate shoes. If any deformities are found, correct with temporary wedges or biomechanically stabilized insoles.

Suitable Product:

MR8852 One-Size Knee Strap

MR8852

Achilles Tendonitis

Common among sports enthusiasts that sharply increases their training frequency. Care shuld be taken when running on the beach or on extremely soft ground. If you have a deformity it will be enhanced on soft ground which will further load the tendon. Achilles tendonitis can take a long time to heal.

Possible Causes:

- A sharp increase in training frequency as well as intensity.
- Limited range of motion in the ankle joint.
- Poor stretching or short muscles.
- Worn-out shoes with insufficient stability and shock absorption.

Symptoms:

- Pain over the Achilles Tendon, usually the middle of the tendon but also in and around the insertion.
- The Achilles Tendon feels stiff and loading is painful, especially in the morning or after a prolonged rest.
- Local swelling and heat sensation over the affected area.
- Crepitations over the tendon felt during activity.

Suggested Actions:

- Try to find other activities for a few weeks that do not give you pain, such as swimming.
- Treat the area with ice to reduce pain.
- Use an ankle brace to keep the Achilles Tendon warm.
- Use a heel wedge of 8-10 mm to unload the Achilles Tendon. (Must be used on both feet to prevent an imbalance).
- Physical therapy with specific eccentric training.
- Gait analysis to verify that you have appropriate shoes. If any deformities are found, correct with temporary wedges or biomechanically stabilized insoles.

Suitable Products:

MR8870 One Size Ankle Brace

MR8870

Ankle Injury

Ligament injuries of the ankle are very common and affect everyone from elite athletes to average exercisers. Twisting your ankle is easily done. The most common injuries are the ones that affect the outer ligaments. Injuries to the internal ligament are more unusual. The injury may seem small and uncomplicated, but after a few hours when swelling increases and you can't load the foot, you understand that something serious has happened. A poorly managed ankle injury can cause many problems later in life. Ankle injuries may take a very long time to heal and the risk of re-injury during the rehabilitation phase is very high. Always seek professional help for severe ankle injuries.

Possible Causes:

- Walking on uneven ground or terrain.
- Repeated sprains or twisting of the ankle during sports such as floorball, soccer or baseball.
- Lack of stability of the ankle joint or an extensive supination of the joint can increase the risk.
- Shoes with poor stability.

Symptoms:

- Immediate pain after the injury. Gradually becomes worse with increased swelling and reduced range of motion in the ankle joint.
- Bruising of the affected area.
- Pain when loading the foot and difficulty walking normally.

Suggested Actions:

- Apply a compression bandage immediately after the injury and keep it on for 1–2 hours. It can be loosened afterward but should be kept on as long as there is a swelling.
- The affected area can be treated with ice to reduce pain and swelling but only after the compression bandage has been applied.
- Use an ankle brace to support and protect the ankle.
- When the swelling and pain have gone down, you can begin coordination and balance training. A balance disc is a perfect rehab tool for ankles.
- If your injury has not improved in a few days, consult an orthopedic doctor.
- Physical therapy with specific training to restore full balance, strength and mobility in the ankle.

Suitable Products:

MR8870 One Size Ankle Brace

MR8870

Symptoms

Ankle

Stretching

Stretching can help muscles to remain flexible, improving muscle coordination and function. A muscle that is stiff cannot work at it's full extension, and can affect training results.

General Effects of Stretching:

Mobility

Stretching can help to maintain, or attain, the range of motion in a muscle group. Patients with low back pain can sometimes experience an immediate pain reduction if the hamstrings and hip muscles are stretched.

Injury Prevention

A muscle that can not work in its full range of motion performs less effectively. Stretching can help you to maintain full mobility and flexibility.

Recovery

Stretching can promote faster recovery after loading. You may experience less pain and stiffness after workouts if you stretch.

Consult a physical therapist or personal trainer to design your own stretching program. You will receive a complete program that is adapted to your body. Make stretching a natural part of your training by including it in the warm-up or cool down portion. Never stretch ligaments! The function of the ligaments is to stabilize and support the joints. Stretching will put unnecessary strain on them which might cause an instability.

Finger Flexors

– Flexor Carpi Ulnaris and Flexor Superficialis Digitorium

Bend the wrist upwards, using your other hand. Stretch and hold for 20 seconds and repeat twice.

Finger Extensors – *Extensor Carpi Radialis Longus, Extensor Digitorium Communis and Extensor Carpi Ulnaris*

Bend the wrist downwards, using your other hand. Stretch and hold for 20 seconds and repeat twice.

Elbow/Forearm
– *Extensor Carpi Radialis Longus, Extensor Digitorium Communis and Extensor Carpi Ulnaris*

Put the hands together. Bend the wrist on the upper arm downwards and then slightly into rotation. The stretch should be felt over the upper part of the arm. Hold for 10–20 seconds and repeat twice.

Elbow

– Triceps, Posterior Deltoid, Teres Minor and Teres Major

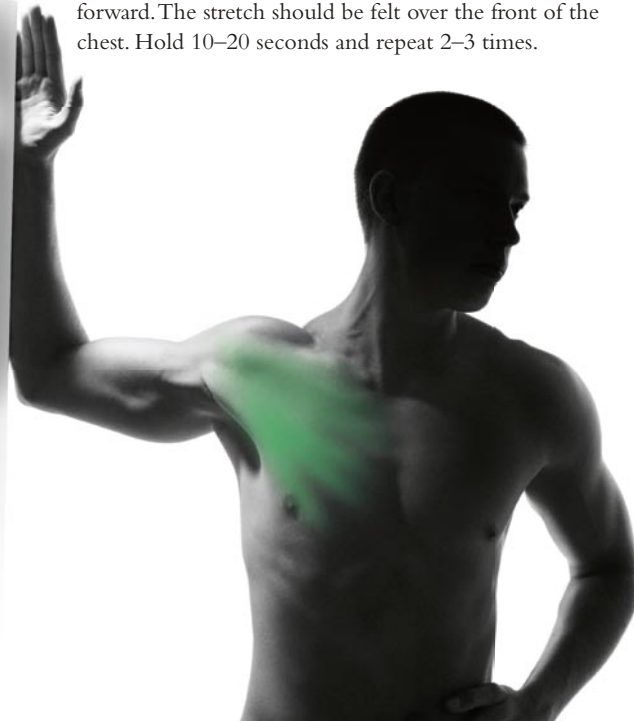
Raise the arm until the elbow is next to the ear and the hand is over the opposite shoulder blade. Grasp the tip of the elbow with the other hand and pull the elbow behind the head. Hold 10-20 seconds and repeat 2–3 times.

Shoulder and upper arm – *Rear Deltoid and Rhomboideus*

Rotate the arm to the side. Support it with the other arm. The stretch should be felt on the back of the upper arm and shoulder. Hold 10–20 seconds and repeat 2–3 times.

Chest – *Pectoralis*

Bend the elbow at a 90 degree angle and support the lower arm against the wall. Move the upper body forward. The stretch should be felt over the front of the chest. Hold 10–20 seconds and repeat 2–3 times.

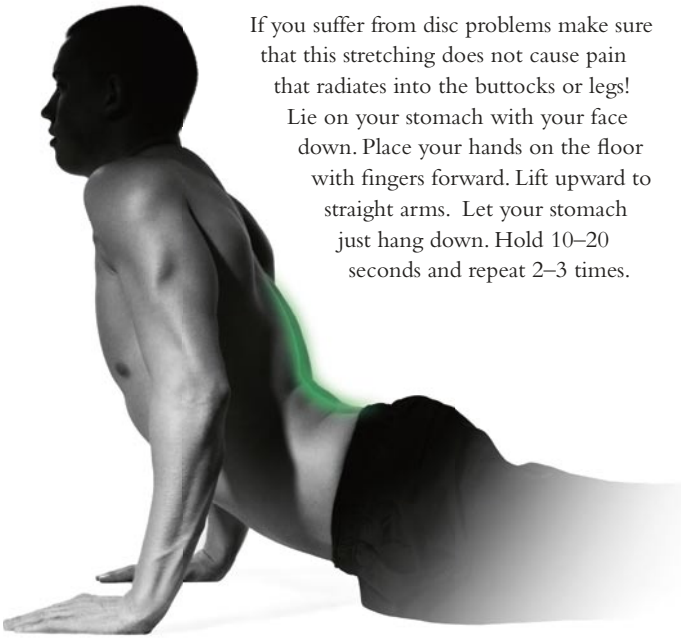


Back – *Erector Spinae*

Squeeze your knees against your palms. Tighten the lumbar muscles and try to relax the rest. Hold for 15–30 seconds and repeat 2–3 times.

Back – *Rectus Abdominis, External/ Internal Oblique*

If you suffer from disc problems make sure that this stretching does not cause pain that radiates into the buttocks or legs! Lie on your stomach with your face down. Place your hands on the floor with fingers forward. Lift upward to straight arms. Let your stomach just hang down. Hold 10–20 seconds and repeat 2–3 times.



Back – *Erector Spinae*

Bend forward and stretch the lower back. Try to relax. Hold for 10–20 seconds and repeat 2–3 times.

Hip – *Gluteus*

Locate a convenient height where you can position your leg. Let the knee, lower leg and foot be in full in contact with the surface. Relax and bend your upper body slightly forward, with your back straight. Hold for 10–20 seconds and repeat 2–3 times.

Hips – *Gluteus, Adductors*

Find a good position to support the leg. If desired, add something soft under the knee joint. Extend the leg and the lower buttocks. The upper body should be bent forward with your back straight. Relax and hold for 10–20 seconds and repeat 2–3 times.

Hip – *Gluteus*

Extend one leg out and bend the opposite leg over. Rotate your upper body down toward the hip side and lift/press the leg lightly against your body. The stretching should be felt on the outside of the hip. The foot can be lifted from the ground slightly for more effect. Hold for 10–20 seconds and repeat 2–3 times.

Hips/Thighs – *Rectus Femoris, Sartorius, Iliopsoas*

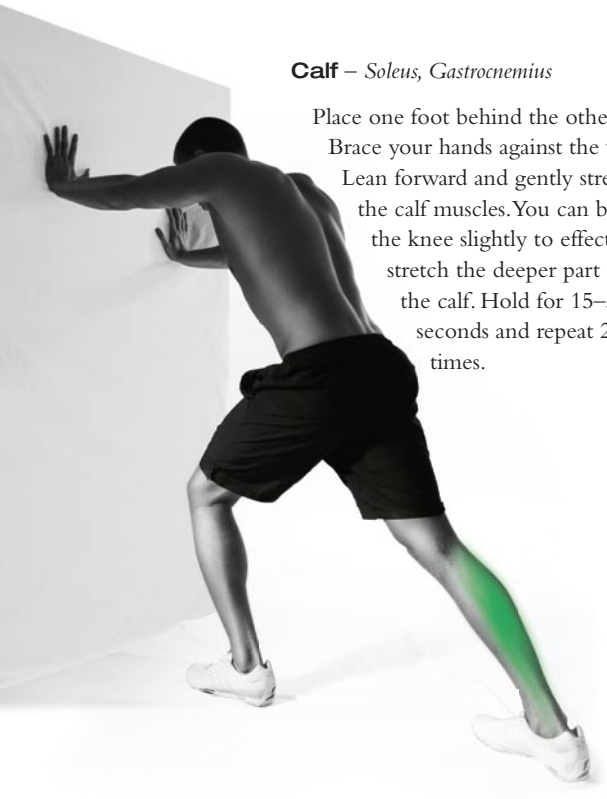
Bend one leg at about a 90-degree angle. Extend the other leg behind the torso and touch the floor with the knee and lower leg. Find a stable position. Move the hip forward, placing more weight on the forward leg. The stretch should be felt on the front of the hip and the thigh. Hold for 10–20 seconds and repeat 2–3 times.

Thigh – *Hamstrings*

Locate a convenient height where you can offload one leg, make sure the foot is pointing forward. The knee joint can be anywhere from fully extended to slightly bent. Bend forward at the hip with a straight back and support with the hands against the lower leg. Hold 10–20 seconds and repeat 2–3 times.

Thighs – *Quadriceps*

Stand upright on one leg. Bend the knee and grasp the foot. Pull the heel backward and slightly upward. Push the hip forward. Hold for 10–20 seconds and repeat 2–3 times.

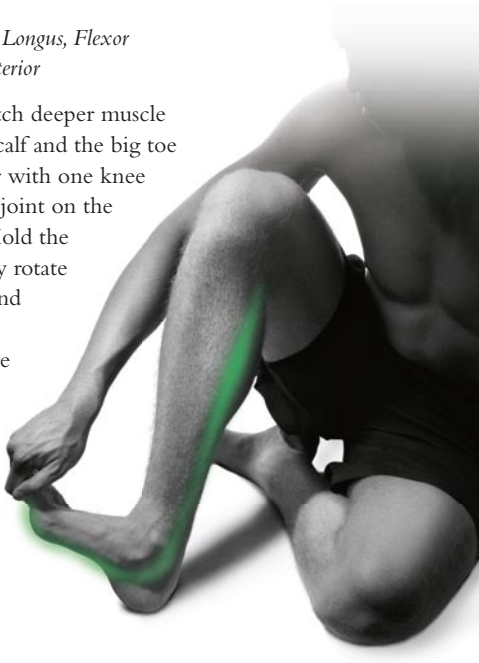


Calf – *Soleus, Gastrocnemius*

Place one foot behind the other. Brace your hands against the wall. Lean forward and gently stretch the calf muscles. You can bend the knee slightly to effectively stretch the deeper part of the calf. Hold for 15–30 seconds and repeat 2–3 times.

Calf – *Flexor Hallucis Longus, Flexor Digitorium, Tibialis Posterior*

This exercise will stretch deeper muscle compartments in the calf and the big toe flexor. Sit on the floor with one knee bent. Place the elbow joint on the outside of the knee. Hold the forefoot and externally rotate the ankle and then bend upward. For a more effective stretch, lift the big toe. Hold for 10–20 seconds and repeat 2–3 times.



Eccentric Training

Training consists of various movements. These movements can be divided into two phases, concentric and eccentric. In the concentric phase, the muscles are shortened and tightened to become more compact. In the eccentric phase the muscle is stretched out to halt a movement. A muscle is always stronger in the eccentric than in the concentric phase. Our reflexes allows the muscle to develop more power in eccentric movement as part of the body's defense system. When we fall, it is precisely with an eccentric motion that we receive the body burden.

The eccentric training has attracted much attention in recent years because of its positive effect on long-term pain such as in the kneecap tendon. Studies* have shown very positive effects of eccentric training, for example with tennis elbow-, knee- and achilles tendon problems.

This training method lets the damaged part slow movement itself, and then use the second part stretching. A physical therapist or personal trainer is a great help. They can help to remove the mass in the concentric phase, which means that you only train eccentrically.

* ECCENTRIC TRAINING AS TREATMENT FOR TENDINOSIS-A REVIEW. ERIK WALLER, ERIK WALLIN LULEÅ UNIVERSITY C-LEVEL 2008:090 - ISSN: 1402-1773 - ISRN: LTU-CUPPA - - 08/090 - - SE

Eccentric Training for Knee Extension

· Sit on the floor. Extend the leg and add a roll under the knee joint.

Eccentric Training for Patella Tendon and Quadriceps

· Stand on a step-board with a wedge which is angled forward. Lift the uninjured leg.

· Bend the injured knee to a maximum.

· Extend the knee over the roll. Make sure that the foot is pointing forward. Hold for 3-5 seconds. Perform 10 repetitions twice.

· When you reach the lower position, put down the other leg.

· Lift with both legs to the starting position. Perform 15 repetitions twice.

Eccentric Training for Tennis Elbow

· Place the forearm on a flat surface with the elbow at a 90-degree angle. Your palm should be facing down and the wrist should be placed outside the edge.

· Start by bending up the wrist without weight. Next pick up the dumbbell. Always start with a lighter weight and then increase the load gradually during the 12 weeks.

Eccentric training for Achilles Tendonitis

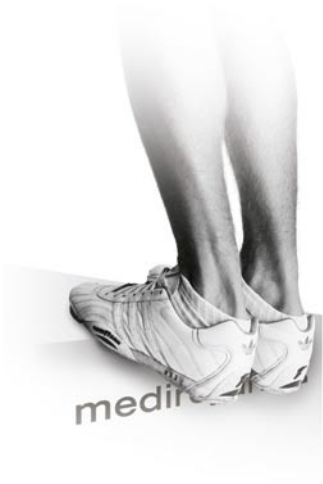
· Use a step-board. Stand on your toes on both feet.

· Start by lifting the uninjured leg. Bend the ankle down to the maximum on the other leg.

· Lower the wrist slowly.

· In the lower position, remove the dumbbell and bend the wrist upward without weight.

· When the ankle has reached maximum bending, lower the uninjuried leg back to the same position.



· Lift with both legs to the starting position. Perform 15 repetitions twice.

MR8810 One-Size Wrist Beige

This brace is designed to provide support over the wrist. The metal splint in the palm can be individually adjusted. The firm strap around the wrist provides an adjustable support.

Indications: Instability, inflammation and pain in the wrist

Size	Universal 12–18 cm Take the measurement around the wrist

MR8811 One-Size Wrist Black

This brace is designed to provide support over the wrist. The metal splint in the palm can be individually adjusted. The firm strap around the wrist provides an adjustable support.

Indications: Instability, inflammation and pain in the wrist

Size	Universal 12–18 cm Take the measurement around the wrist

MR8815 One-Size Universal Wrist

This brace gives a light wrist support. Made of NeoTex that provide a heating effect. The fixed strap around the wrist gives an adjustable stability.

Indications: Lighter instability and pain in the wrist

Size	Universal 12–18 cm Take the measurement around the wrist

MR8820 One-Size Elbow

This brace provide a light support for the elbow joint.
Made of NeoTex that gives a heating effect.

Indications: Pain in the elbow region, lighter instabilities and inflammation

Size	Universal 20–30 cm
	Take the measurement around the elbow joint

MR8821 One-Size Tennis Elbow

This brace gives an unloading and can provide pain reduction for tennis elbow problems. Under the D-ring there is a pad that provide a light pressure.

Indications: Pain and inflammation during Tennis Elbow problems

Size	Universal 20–32 cm
	Take the measurement around the elbow joint

One Size

MR8850 Elastic Knee

This elastic knee brace with spiral stays provides a light support and unloading of the knee joint.

Indications: Knee pain, lighter instabilities, arthrosis or muscle inflammations

Size	S/M 29–35 cm	L/XL 36-44 cm
	Take the measurement around the knee joint	

MR8851 One-Size Universal Knee

This brace provides a good support for the knee joint. Used for lighter ligament injuries, instability, arthrosis or muscle inflammation. Made of NeoTex that gives a good compression and heat.

Indications: Lighter ligament injuries, instability, arthrosis or muscle inflammation

Size	Universal 29–42 cm
	Take the measurement around the knee joint

MR8852 One-Size Knee Strap

This brace gives a light support and unloading of the patella tendon. Used for Os Schlatters disease or jumper knee.

Indications: Os Schlatters disease, jumpers knee or patella tendon pain problems

Size	Universal 29–42 cm
	Take the measurement around the knee joint

One Size

MR8830 One-Size Back

This brace gives support and unloading of the back. The support can be adjusted individually with the extra straps. In the back of the brace there is a NeoTex material that provide heat to the lumbal area.

Indications: Back pain, lighter instabilities and muscle inflammation in the back

Size	Universal 70–110 cm Take the measurement around the back

MR8870 One-Size Ankle

This brace can be used for both ankle instabilities, lighter sprains and for achilles problems. Made of NeoTex which provides both compression and heat. The extra strap can be applied for additional individual support.

Indications: Ankle instabilities, lighter sprains and Achilles tendon problems

Size	Universal 18–26 cm Circumference measurement is taken around the ankle joint

One Size

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